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10/530,394

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Eric Verschueren

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EXAMINER

ZIMMERMAN, JOSHUA D

ART UNIT

PAPER NUMBER

2854.

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/530,394

**Applicant(s)**

VERSCHUEREN, ERIC

**Examiner**

Joshua D. Zimmerman

**Art Unit**

2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12, 15-34 and 41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15-34 and 41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 4, 5, 6, 17, 22 and 41 are rejected under 35 U.S.C. 103(a) as being obvious over Kamitani (US 2002/0098288) in view of McCullough et al. (WO 99/21715).

Regarding claims 1 and 41, Kamitani teaches "a method of making a heat-sensitive lithographic printing plate precursor (paragraph 11) comprising the steps of

- (i) providing a web of a lithographic support having a hydrophilic surface (paragraph 12 and paragraph 47, lines 13-15);
- (ii) applying a coating comprising a phenolic resin on the hydrophilic surface of the web (paragraph 51);
- (iii) drying the coating (paragraph 12);
- (iv) heating the web wherein the temperature is maintained above 150°C (paragraph 12, 3<sup>rd</sup> example from the bottom of table 1); and
- (v) winding the precursor on a core or cutting the precursor into sheets (paragraph 70)."

Kamitani does not specifically teach that "the temperature is maintained above 150°C during a period of" a) "between 1 and 30 seconds," as claimed in claim 1, or b) "between 0.1 and 60 seconds," as claimed in claim 41. Kamitani does suggest the

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ability to vary the temperature and time conditions in order to achieve desired results (see, for example, Table 1 and Table 2). McCullough et al. teach a method of heating a printing plate precursor (abstract). Further, McCullough et al. teach the desire and ability to vary, by trial and error, the time and temperature settings to achieve desired sensitivity in the printing plate precursors (page 7, lines 23-24 and lines 33-34).

McCullough et al. also teach that when the printing plate precursors are heated to a higher temperature, the precursors should be held at that temperature for a shorter time (see the sentence bridging pages 7 and 8). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to maintain the temperature of the precursors above 150°C for a period of between 1 and 30 seconds (or for a period of between 0.1 and 60 seconds, as in claim 41) in order to achieve a desired sensitivity.

Regarding claim 4, Kamitani further teaches “wherein the heating step is carried out by exposing the precursor to infrared or microwave radiation (paragraphs 33 and 37).”

Regarding claim 5, Kamitani further teaches “further comprising a cooling step between step (iv) and step (v) (paragraph 38).

Regarding claim 6, Kamitani further teaches “wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39).”

Regarding claim 17, Kamitani further teaches “further comprising a cooling step between step (iv) and step (v) (paragraph 38).”

Regarding claim 22, Kamitani further teaches “wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39).”

2. Claims 7, 8, 10 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani and McCullough et al.

Kamitani and McCullough et al. teach all that is claimed in claims 5, 6 and 22, as discussed above.

Regarding claims 7 and 23, Kamitani and McCullough et al. do not specifically teach “wherein said average cooling rate is at least 0.5°C/s.” However, Kamitani does teach the use of a forced cooling system (paragraph 39) in conjunction with a continuous web-type system (figure 1). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant’s disclosure). Further, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph 39). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a rate higher than 0.5°C/s in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

Regarding claims 8, 24 and 25, applicant admits the Tg of phenolic resins to be between 75°C and 95°C (page 10, lines 5-7 of applicant's disclosure). Kamitani discloses cooling from temperatures above 95°C (Table 1 and Table 2) to temperatures below 75°C (paragraph 41). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani teaches the ability change the cooling time to meet process needs (last sentence of paragraph 39). Also, it is an inherent property of polymer processing that cooling too quickly from a temperature above the Tg to a temperature below the Tg results in voids and/or other defects in the polymer microstructure, thus deteriorating the polymer stability. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to make the cooling rate less than 10°C/s in order to prevent the formation of voids and/or other defects, so as to enhance the stability of the polymer in the printing plate precursor.

Regarding claim 10, Kamitani further teaches "T1 is Tg+20°C and T2 is Tg-20°C (paragraph 41 and table 1 and table 2. The high temperatures are 20 degrees higher than Tg and the low temperatures are 20 degrees lower than Tg).

3. Claims 3, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani and McCullough et al. as applied to claim 1 above, further in view of Kojima et al. (US 5,380,612).

Regarding claim 3, Kamitani does not specifically teach "wherein the heating step is carried out by blowing hot air or steam onto the precursor." However, Kamitani does suggest it is possible to use hot air to heat the printing plate (paragraph 37, lines 2-3). Further, Kojima et al. teach the equivalence of hot air heaters to infrared heaters (column 10, lines 55-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a hot air heater in place of the heater of Kamitani to save money by using existing hot air heaters.

Regarding claim 16, Kamitani further disclose "further comprising a cooling step between step (iv) and step (v) (paragraph 38)."

Regarding claim 19, Kamitani further disclose "wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39)."

4. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani and McCullough et al. in view of Kojima et al. as applied to claims 3, 16, and 19 above.

Regarding claim 21, Kamitani in view of Kojima et al. does not specifically teach "wherein said average cooling rate is at least 0.5°C/s." However, Kamitani does teach the use of a forced cooling system (paragraph 39) in conjunction with a continuous web-type system (figure 1). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence

of paragraph 39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a higher than 0.5°C/s in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

5. Claims 9, 26, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani and McCullough et al., as applied to claims 8, 24 and 25 above, in view of Price (6,007,240).

Regarding claims 9, 26 and 27, Kamitani and McCullough et al. do not specifically disclose three different phases. However, it is an inherent property of polymer processing that cooling too quickly from a temperature above the T<sub>g</sub> to a temperature below the T<sub>g</sub> results in voids and/or other defects in the polymer microstructure, thus deteriorating the polymer stability. It is also a property of the glass transition region that polymer relaxation effects are stronger than above or below the transition region. Price teaches this fact (column 5, lines 63-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to have a slower cooling rate in the glass transition region in order to reduce the formation of voids and/or other defects, so as to enhance both the microstructure and the stability of the polymer in the printing plate precursor.

Regarding the further limitation of a cooling rate of at least 10°C/s in the first and third phases, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph



39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a rate higher than 10°C/s in these regions in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

Regarding claim 28, Kamitani further teaches "T1 is Tg+20°C and T2 is Tg-20°C (paragraph 41 and table 1 and table 2. The high temperatures are 20 degrees higher than Tg and the low temperatures are 20 degrees lower than Tg).

6. Claims 2, 12, 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani as applied to claim 1 above, in view of McCullough et al. (WO 99/21715). Kamitani teaches all that is claimed in claim 1, as discussed above. Kamitani does not specifically teach "wherein during the heating step the web temperature is maintained above 170°C during a period of between 1 and 30 seconds." Kamitani does suggest the ability to vary the temperature and time conditions in order to achieve desired results (see, for example, Table 1 and Table 2). McCullough et al. teach a method of heating a printing plate precursor (abstract). Further, McCullough et al. teach the desire and ability to vary, by trial and error, the time and temperature settings to achieve desired sensitivity in the printing plate precursors (page 7, lines 23-24 and lines 33-34). McCullough et al. also teach that when the printing plate precursors are heated to a higher temperature, the precursors should be held at that temperature for a shorter time (see the sentence bridging pages 7 and 8). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention,

through routine experimentation, to maintain the temperature of the precursors above 170°C for a period of between 1 and 30 seconds in order to achieve a desired sensitivity.

Regarding claim 12, Kamitani further teaches “wherein the heating step is carried out by exposing the precursor to infrared or microwave radiation (paragraphs 33 and 37).”

Regarding claim 30, Kamitani further teaches “further comprising a cooling step between step (iv) and step (v) (paragraph 38).”

Regarding claim 32, Kamitani further teaches “wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39).”

7. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani in view of McCullough et al. as applied to claims 2, 12, 30 and 32 above.

Kamitani in view of McCullough et al. fails to specifically teach “wherein said average cooling rate is at least 0.5°C/s.” However, Kamitani does teach the use of a forced cooling system (paragraph 39) in conjunction with a continuous web-type system (figure 1). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph 39). Therefore it would have been obvious to one of ordinary skill in the

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art at the time of the invention, through routine experimentation, to set the cooling rate at a rate higher than 0.5°C/s in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

8. Claims 11, 15, 18, 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani in view of McCullough as applied to claim 2 above, and further in view of Kojima et al. (US 5,380,612).

Regarding claim 11, Kamitani does not specifically teach “wherein the heating step is carried out by blowing hot air or steam onto the precursor.” However, Kamitani does suggest it is possible to use hot air to heat the printing plate (paragraph 37, lines 2-3). Further, Kojima et al. teach the equivalence of hot air heaters to infrared heaters (column 10, lines 55-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a hot air heater in place of the heater of Kamitani to save money by using existing hot air heaters.

Regarding claim 29, Kamitani further teaches “further comprising a cooling step between step (iv) and step (v) (paragraph 38).”

Regarding claim 31, Kamitani further disclose “wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39).”

Regarding claim 15, Kamitani further teaches “further comprising a cooling step between step (iv) and step (v) (paragraph 38).”

Regarding claim 18, Kamitani further teaches "wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39)."

9. Claims 20 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani in view of McCullough et al. further in view of Kojima et al. as applied to claims 11, 29 and 31 above.

Regarding claims 20 and 33, Kamitani in view of McCullough et al. further in view of Kojima et al. does not specifically teach "wherein said average cooling rate is at least 0.5°C/s." However, Kamitani does teach the use of a forced cooling system (paragraph 39) in conjunction with a continuous web-type system (figure 1). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph 39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a rate higher than 0.5°C/s in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

### ***Response to Arguments***

Applicant's arguments filed 4/3/07 have been fully considered but they are not persuasive.

10. Applicant argues that Kamitani does not teach temperatures of greater than 140 °C. However, Tables 1 and 2 clearly teach heating at 153 °C and 152°C, respectively. Even though the outcome might have been less than desired, a functioning printing plate that was able to withstand repeated printings was obtained (Table 1 and Table 2). Said printing plate would therefore be considered a “success.” If anything, these results *encourage* one having ordinary skill in the art to seek out solutions to the problems associated with higher heating temperatures.

11. Applicant further argues that McCullough et al. teach away from high heating temperatures and low heating times, repeatedly asserting that McCullough et al. ‘unambiguously’ teach a hard, unexceedable limit of 140°C for a heating temperature, further stating that “a minimum of four (4) hours of treatment **must** be used in all cases” (emphasis added). *See the last three paragraphs of page 10 of applicant’s reply dated 4/3/07.* This is simply incorrect.

Regarding the temperature limitation, while McCullough et al. do suggest an upper limit, said limit is qualified as being merely a ‘guide’ that McCullough et al. merely ‘favor’ (page 7, lines 24-25). McCullough et al. clearly teach, and even *encourage*, using trial and error to determine the heating temperature (page 7, lines 23-24). In fact, McCullough et al. *explicitly* state that the upper temperature limit is left up to the reader to determine, by trial and error (page 7, lines 23-24). These teachings clearly would not prohibit or prevent one having ordinary skill in the art from trying, through routine experimentation, a higher temperature.

Regarding the time limitation, McCullough et al. simply do not teach that a minimum of four hours **must** be used. Page 8, lines 1 and 2 clearly state that a time of four hours is merely "favoured." Clearly this is not a **must**, as asserted by applicant.

Further McCullough et al. chose the specified time and temperature 'guide' because of the 'criticality' of the low times that would be required at high temperatures (page 7, lines 17-23). It is well within the scope of routine experimentation to incorporate new technologies and/or knowledge to overcome the 'criticality' of the lower heating times required by the higher temperatures.

Regardless, the specifics of the temperature and time guides of McCullough et al. are irrelevant, since the only teaching used or required in the rejection outlined above is that at higher temperatures, lower holding times are desired, and that the temperature and hold times are results-effective variables that one having ordinary skill in the art is encouraged to vary.

12. Applicant also argues that one having ordinary skill in the art would not have a reasonable expectation of success in combining the teachings of McCullough et al. with those of Kamitani because of their alleged teaching away of the higher temperatures. However, McCullough et al. and Kamitani both teach using higher temperatures and lower hold times, with Kamitani clearly disclosing heating at temperatures above 150°C for periods of time on the order of seconds (Tables 1 and 2) and McCullough et al. specifically encourage one having ordinary skill in the art to explore higher temperatures and lower hold times (sentence bridging pages 7 and 8) to achieve a desired sensitivity (sentence bridging pages 6 and 7).

Therefore, since McCullough et al. is relied upon for teaching that for higher temperatures, lower holding times are desired, and both Kamitani and McCullough et al. teach that the temperature and hold times are results-effective variables, the motivation is present for one having ordinary skill in the art to use routine experimentation to determine the optimal temperature and hold times based on the disclosures and teachings of Kamitani. In this instance, one having ordinary skill in the art would have been motivated to explore, during routine experimentation, temperatures around 150°C and hold times around 5 seconds (as clearly disclosed in Tables 1 and 2) in order to achieve a desired sensitivity. This clearly renders obvious applicant's claimed invention.

Applicant is directed to MPEP § 2144.05, paragraph II and especially paragraph III.

13. Finally, applicant argues that McCullough et al. do not teach or suggest heating a web. This argument is moot since the teachings of McCullough et al. are used only for their teaching of higher temperatures and lower hold times.

#### ***Conclusion***

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua D. Zimmerman whose telephone number is 571-272-2749. The examiner can normally be reached on M-R 8:30A - 6:00P, Alternate Fridays 8:30A-5:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joshua D Zimmerman  
Examiner  
Art Unit 2854

jdz

  
**JUDY NGUYEN**  
SUPERVISORY PATENT EXAMINER